

Amendments To Claims

Claims 1-10. (Cancelled).

11. (Currently Amended) A method for adapting a Bayesian network ~~that models an environment~~, comprising:

generating a set of parameters for the Bayesian network in response to a set of past observation data such that the Bayesian network models an environment;

obtaining a set of present observation data from the environment;

updating ~~a set of the parameters of the Bayesian network~~ in response to the present observation data using a learning rate that is selected to respond to changes in ~~indicates a relative weight of the present observation data and a set of past observation data pertaining to the environment.~~

12. (Previously Presented) The method of claim 11, wherein updating comprises updating the parameters using a different learning rate for each parameter of the Bayesian network.

13. (Previously Presented) The method of claim 11, further comprising determining the learning rate by determining an initial value for the learning rate and determining an estimate of the parameters in response to the present observation data and increasing the learning rate if an error between the estimate and a mean value of the parameters is relatively large.

14. (Previously Presented) The method of claim 11, further comprising determining the learning rate by determining an

initial value for the learning rate and determining an estimate of the parameters in response to the present observation data and decreasing the learning rate when convergence is reached between the estimate and a mean value of the parameters.

15. (Previously Presented) The method of claim 11, wherein a subset of values in the present observation data is unavailable when updating.

16. (Previously Presented) The method of claim 11, wherein the environment is an online environment.

17. (Previously Presented) The method of claim 16, wherein the online environment is an email system.

18. (Previously Presented) The method of claim 16, wherein the online environment is an e-commerce system.

19. (Previously Presented) The method of claim 16, wherein the online environment is a database system.

20. (Previously Presented) The method of claim 11, wherein updating comprises determining an initial set of the parameters and then updating the parameters in response to the present observation data using the learning rate.

21. (Currently Amended) A system, comprising:

on-line environment that generates a set of present observation data;

Bayesian network that performs automated reasoning for

the on-line environment in response to the present observation data;

on-line adapter that obtains the present observation data from the on-line environment and that adapts a set of parameters for the Bayesian network in response to the present observation data according to a learning rate that is selected to respond to changes in the on-line environment ~~indicates a relative weight of a set of past observation data and the present observation data.~~

22. (Previously Presented) The system of claim 21, wherein the on-line adapter adapts the parameters using a different learning rate for each parameter of the Bayesian network.

23. (Previously Presented) The system of claim 21, wherein the on-line adapter adapts the parameters by determining an initial set of the parameters and then updating the parameters in response to the present observation data using the learning rate.

24. (Previously Presented) The system of claim 21, wherein the on-line adapter determines the learning rate by determining an initial value for the learning rate and determining an estimate of the parameters in response to the present observation data and increasing the learning rate if an error between the estimate and a mean value of the parameters is relatively large.

25. (Previously Presented) The system of claim 21, wherein the on-line adapter determines the learning rate by determining an initial value for the learning rate and

determining an estimate of the parameters in response to the present observation data and decreasing the learning rate when convergence is reached between the estimate and a mean value of the parameters.

26. (Previously Presented) The system of claim 21, wherein a subset of values in the present observation data is unavailable.

27. (Previously Presented) The system of claim 21, wherein the online environment is an email system.

28. (Previously Presented) The system of claim 21, wherein the online environment is an e-commerce system.

29. (Previously Presented) The system of claim 21, wherein the online environment is a database system.